

SEQUENCE LISTING

<110> Bachmann, Martin F  
Tissot, Alain  
Pumpens, Paul  
Cielens, Indulis  
Renhofa, Regina

<120> Molecular Antigen Arrays

<130> 1700.0310001

<150> US 60/396,126

<151> 2002-07-17

<160> 125

<170> PatentIn version 3.2

<210> 1

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<212> PRT

<213> Bacteriophage AP205

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Gly Gln Tyr Val Ser Val Tyr Lys Arg Pro Ala Pro Lys Pro Glu Gly  
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Cys Ala Asp Ala Cys Val Ile Met Pro Asn Glu Asn Gln Ser Ile Arg  
65 70 75 80

Thr Val Ile Ser Gly Ser Ala Glu Asn Leu Ala Thr Leu Lys Ala Glu  
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Trp Glu Thr His Lys Arg Asn Val Asp Thr Leu Phe Ala Ser Gly Asn  
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Val Trp Ser Asp Pro Thr Arg Leu Ser Thr Thr Phe Ser Ala Ser Leu  
20 25 30

Leu Arg Gln Arg Val Lys Val Gly Ile Ala Glu Leu Asn Asn Val Ser  
35 40 45

Gly Gln Tyr Val Ser Val Tyr Lys Arg Pro Ala Pro Lys Pro Glu Gly  
50 55 60

Cys Ala Asp Ala Cys Val Ile Met Pro Asn Glu Asn Gln Ser Ile Arg  
65 70 75 80

Thr Val Ile Ser Gly Ser Ala Glu Asn Leu Ala Thr Leu Lys Ala Glu  
85 90 95

Trp Glu Thr His Lys Arg Asn Val Asp Thr Leu Phe Ala Ser Gly Asn  
100 105 110

Ala Gly Leu Gly Phe Leu Asp Pro Thr Ala Ala Ile Val Ser Ser Asp  
115 120 125

Thr Thr Ala  
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<223> Abeta 1-15 GGC

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<223> Abeta 33-42 mutant

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<212> PRT  
<213> Homo sapiens

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<213> Homo sapiens

<400> 12

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<213> Homo sapiens

<400> 13

Asp Arg Val Tyr Ile His Pro Phe  
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<210> 14  
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<212> PRT  
<213> Artificial Sequence

<220>  
<223> CGG-angiotensin I

<400> 14

Cys Gly Gly Asp Arg Val Tyr Ile His Pro Phe  
1 5 10

<210> 15  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CGG-Angiotensin I peptide

<400> 15

Cys Gly Gly Asp Arg Val Tyr Ile His Pro Phe His Leu  
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<210> 16  
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<212> PRT  
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<223> Angiotensin-I GGC peptide

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Asp Arg Val Tyr Ile His Pro Phe His Leu Gly Gly Cys  
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<210> 17  
<211> 26  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> prion peptide "cprplong"

<400> 17

Cys Ser Ala Met Ser Arg Pro Met Ile His Phe Gly Asn Asp Trp Glu  
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Asp Arg Tyr Tyr Arg Glu Asn Met Tyr Arg  
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<210> 18  
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<220>  
<223> prion peptide "cprpshort"

<400> 18

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1				5					10					15	

<210> 19  
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<400> 19

Cys	Ser	Ala	Met	Ser	Arg	Pro	Ile	Ile	His	Phe	Gly	Ser	Asp	Tyr	Glu
1				5					10					15	

Asp	Arg	Tyr	Tyr	Arg	Glu	Asn	Met	His	Arg
			20					25	

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<400> 20

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<220>  
<223> prion peptide "bovine cprplong"

<400> 21

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20

25

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<210> 23  
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<212> PRT  
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<220>  
<223> prion peptide "sheep cprplong"

<400> 23

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1 5 10 15

Asp Arg Tyr Tyr Arg Glu Asn Met Tyr Arg  
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<210> 24  
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<220>  
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<400> 24

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<210> 25  
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<220>  
<223> murine TNF- a mutant

<400> 25

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<210> 26  
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<213> Artificial Sequence

<220>  
<223> murine TNF- a mutant

<400> 26

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His Gly Val Gly Gly Cys  
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<210> 27  
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<212> PRT  
<213> Artificial Sequence

<220>  
<223> murine TNF-a mutant peptide

<400> 27

Cys Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val Ala  
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Asn His Gly Val  
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<210> 28  
<211> 22  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human TNF-a peptide mutant

<400> 28

Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val Val Ala Asn  
1 5 10 15

Pro Gln Ala Glu Gly Gln  
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<210> 29  
<211> 11  
<212> PRT  
<213> Homo sapiens

<400> 29

Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala

1 5 10

<210> 30  
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<220>  
<223> CGG-IgE peptide mutant

<400> 30

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<220>  
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<400> 31

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<212> PRT  
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<220>  
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<400> 32

Arg Asn His Arg Gly Tyr Trp Val  
1 5

<210> 33  
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<400> 33

Arg Ser Arg Ser Gly Gly Tyr Trp Leu Trp  
1 5 10

<210> 34  
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<400> 34

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1				5					10

<210> 35

<211> 10

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<220>

<223> CeH3 epitope

<400> 35

Val	Asn	Leu	Pro	Trp	Ser	Arg	Ala	Ser	Gly
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<210> 36

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<212> PRT

<213> Artificial Sequence

<220>

<223> CeH3 epitope

<400> 36

Val	Asn	Leu	Thr	Trp	Ser	Phe	Gly	Leu	Glu
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<210> 37

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<212> PRT

<213> Artificial Sequence

<220>

<223> CeH3 epitope

<400> 37

Val	Asn	Leu	Pro	Trp	Ser	Phe	Gly	Leu	Glu
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<210> 38

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> CeH3 mimotope

<400> 38

Val Asn Arg Pro Trp Ser Phe Gly Leu Glu  
1 5 10

<210> 39  
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<220>  
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<400> 39

Val Lys Leu Pro Trp Arg Phe Tyr Gln Val  
1 5 10

<210> 40  
<211> 10  
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<220>  
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<400> 40

Val Trp Thr Ala Cys Gly Tyr Gly Arg Met  
1 5 10

<210> 41  
<211> 7  
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<220>  
<223> CeH3 mimotope

<400> 41

Gly Thr Val Ser Thr Leu Ser  
1 5

<210> 42  
<211> 7  
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<220>  
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<400> 42

Leu Leu Asp Ser Arg Tyr Trp  
1 5

<210> 43  
<211> 7

<212> PRT  
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<220>  
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<400> 43

Gln Pro Ala His Ser Leu Gly  
1 5

<210> 44  
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<220>  
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<400> 44

Leu Trp Gly Met Gln Gly Arg  
1 5

<210> 45  
<211> 15  
<212> PRT  
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<220>  
<223> CeH3 mimotope

<400> 45

Leu Thr Leu Ser His Pro His Trp Val Leu Asn His Phe Val Ser  
1 5 10 15

<210> 46  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CeH3 mimotope

<400> 46

Ser Met Gly Pro Asp Gln Thr Leu Arg  
1 5

<210> 47  
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<220>  
<223> CeH3 mimotope

<400> 47

Val Asn Leu Thr Trp Ser  
1 5

<210> 48

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> CeH3 mimotope

<400> 48

Gly Glu Phe Cys Ile Asn His Arg Gly Tyr Trp Val Cys Gly Asp Pro  
1 5 10 15

Ala .

<210> 49

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> glycine serine linker

<220>

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<222> (1)..(5)

<223> These residues can be repeated from zero to any times as a group

<400> 49

Gly Gly Gly Gly Ser  
1 5

<210> 50

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> N-terminal gamma1 linker

<400> 50

Cys Gly Asp Lys Thr His Thr Ser Pro Pro  
1 5 10

<210> 51

<211> 9

<212> PRT

<213> Artificial Sequence

<220>  
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<400> 51

Asp Lys Thr His Thr Ser Pro Pro Cys  
1 5

<210> 52  
<211> 17  
<212> PRT  
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<220>  
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<400> 52

Cys Gly Gly Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly Ala  
1 5 10 15

Pro

<210> 53  
<211> 18  
<212> PRT  
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<220>  
<223> C-terminal gamma 3 linker

<400> 53

Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly Ala Pro Gly Gly  
1 5 10 15

Cys Gly

<210> 54  
<211> 6  
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<220>  
<223> N-terminal glycine linker

<400> 54

Gly Cys Gly Gly Gly Gly  
1 5

<210> 55  
<211> 6  
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<213> Artificial Sequence

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<223> C-terminal glycine linker

<400> 55

Gly Gly Gly Gly Cys Gly  
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<210> 56

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> C-terminal glycine-lysine linker

<400> 56

Gly Gly Lys Lys Gly Cys  
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<210> 57

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> N-terminal glycine-lysine linker

<400> 57

Cys Gly Lys Lys Gly Gly  
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<210> 58

<211> 4

<212> PRT

<213> Artificial Sequence

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<400> 58

Gly Gly Cys Gly  
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<210> 59

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> p1.44 primer

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aaccatggca aataagccaa tgcaa 25

<210> 60  
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<400> 60  
aatctagaat tttctgcgca cccatcccgg 30

<210> 61  
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aaaagcttaa gcagtagtat cagacgatac g 31

<210> 62  
<211> 43  
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<223> p1.47 primer

<400> 62  
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<210> 63  
<211> 43  
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<220>  
<223> p1.48 primer

<400> 63  
cagacttgct gaaaatgtag ttgataaacg agttggatca ctc 43

<210> 64  
<211> 21  
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<220>  
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<400> 64

Cys Gln Ile Tyr Pro Pro Asn Ala Asn Lys Ile Arg Glu Ala Leu Ala

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<211> 37
<212> DNA
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<220>  
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<400> 69  
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<210> 70  
<211> 33  
<212> DNA  
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<220>  
<223> 3' LT- bstop-NotI primer

<400> 70  
caatgactgc ggccgcttac cccaccatca ccg 33

<210> 71  
<211> 74  
<212> DNA  
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<220>  
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<400> 71  
gtttaacttt aagaaggaga tatacatatg gatccggcta gcgctcgagg gtttaaacgg 60  
cggccgcatg cacc 74

<210> 72  
<211> 43  
<212> DNA  
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<220>  
<223> primerMCS-1F

<400> 72  
tatggatccg gctagcgctc gaggggtttaa acggcggccg cat 43

<210> 73  
<211> 45  
<212> DNA  
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<220>  
<223> primerMCS-1R

<400> 73  
tcgaatgcgg ccgccgttta aaccctcgag cgctagccgg atcca 45

<210> 74  
<211> 58  
<212> DNA  
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<220>  
<223> Bamhis6-EK-Nhe-F primer

<400> 74  
gatccacacc accaccacca ccacggttct ggtgacgacg atgacaaagc gctagccc 58

<210> 75  
<211> 58  
<212> DNA  
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<220>  
<223> Bamhis6-EK-Nhe-R

<400> 75  
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<210> 76  
<211> 42  
<212> DNA  
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<220>  
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<400> 76  
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<210> 77  
<211> 42  
<212> DNA  
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<220>  
<223> oligo1R-C-glycine-linker

<400> 77  
ggccgcggttt aaacttatta accgcaacca ccaccaccac cc 42

<210> 78  
<211> 51  
<212> DNA  
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<220>  
<223> oligo1F-C-gamma1-linker

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<210> 79  
<211> 51  
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<220>  
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<400> 79  
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<210> 80  
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<212> DNA  
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<220>  
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<400> 80  
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<210> 81  
<211> 38  
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<220>  
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<400> 81  
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<400> 82  
gtggtgctcc gggtggttgc ggttaataag tttaaacgc 39

<210> 83  
<211> 37  
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<400> 83  
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<220>  
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<400> 84  
ggaattccat atgcctatgt tcacgtgaa cac 33

<210> 85  
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<220>  
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<400> 85  
cccgcctcgag agcgaagggtg gaaccgttc 29

<210> 86  
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<220>  
<223> RANKL-UP oligonucleotide

<400> 86  
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ag 62

<210> 87  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> RANKL-DOWN oligonucleotide

<400> 87  
ccgctcgagt tagtctatgt cctgaacttt gaaag 35

<210> 88  
<211> 29  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer 5'PrP-BamHI

<400> 88  
cgggatccca ccatggtggg gggccttgg 29

<210> 89  
<211> 24  
<212> DNA  
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<220>  
<223> Primer 3'PrP-NheI

<400> 89  
ctagctagcc tggatcttct cccg 24

<210> 90  
<211> 55  
<212> DNA  
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<220>  
<223> primer Spelinker3-F1

<400> 90  
ccccgccggg ttcttctggc ggtgctccgg ctagcatgga gattcccatg agcac 55

<210> 91  
<211> 49  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer IL5StopXho-R

<400> 91  
ttttgcggcc gcgtttaaac tcgagttatt agccttccat tgcccactc 49

<210> 92  
<211> 52  
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<220>  
<223> Primer SpeNlinker3-F2

<400> 92  
ttttactagt tggttgcggc ggcccgaaac cgagcacccc gccgggttct tc 52

<210> 93  
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<220>  
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<220>  
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<222> (1)..(1)  
<223> Glycine can be repeated from zero to five times

<220>  
<221> REPEAT  
<222> (3)..(3)  
<223> Glycine can be repeated from zero to twelve times

<400> 93

Gly Cys Gly  
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<210> 94

<211> 9  
<212> PRT  
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<220>  
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<220>  
<221> REPEAT  
<222> (1)..(1)  
<223> Glycine can be repeated from zero to five times

<220>  
<221> REPEAT  
<222> (3)..(3)  
<223> Glycine can be repeated from zero to ten times

<220>  
<221> REPEAT  
<222> (4)..(4)  
<223> Serine can be repeated from zero to two times

<220>  
<221> REPEAT  
<222> (5)..(9)  
<223> These residues can be repeated from zero to three times as a group

<400> 94

Gly Cys Gly Ser Gly Gly Gly Gly Ser  
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<210> 95  
<211> 3  
<212> PRT  
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<220>  
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<220>  
<221> REPEAT  
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<223> Glycine can be repeated from zero to five times

<400> 95

Gly Cys Gly  
1

<210> 96  
<211> 10

<212> PRT  
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<220>  
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<220>  
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<220>  
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<220>  
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<222> (3)..(7)  
<223> These residues can be repeated from zero to three times as a group

<220>  
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<223> Glycine can be repeated from zero to eight times

<220>  
<221> REPEAT  
<222> (10)..(10)  
<223> Glycine can be repeated from zero to five times

<400> 96

Gly Ser Gly Gly Gly Gly Ser Gly Cys Gly  
1 5 10

<210> 97  
<211> 23  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> C-Der p1 peptide mutant

<400> 97

Cys Gly Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp Cys  
1 5 10 15

Ala Ser Gln His Gly Cys His  
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<210> 98  
<211> 10  
<212> PRT  
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<220>

<223> C-Angiotensin I peptide

<400> 98

Cys	Asp	Arg	Val	Tyr	Ile	His	Pro	Phe	His
1				5					10

<210> 99

<211> 26

<212> PRT

<213> Homo sapiens

<400> 99

Cys	Thr	Ala	Arg	Thr	Glu	Leu	Asn	Val	Gly	Ile	Asp	Phe	Asn	Trp	Glu
1				5					10					15	

Tyr	Pro	Ser	Ser	Lys	His	Gln	His	Lys	Lys
			20					25	

<210> 100

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> C TNF-a peptide mutant

<400> 100

Cys	Ser	Ser	Arg	Thr	Pro	Ser	Asp	Lys	Pro	Val	Ala	His	Val	Val	Ala
1				5					10					15	

Asn	Pro	Gln	Ala	Glu	Gly	Gln
			20			

<210> 101

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> TNF-a-C mutant

<400> 101

Ser	Ser	Arg	Thr	Pro	Ser	Asp	Lys	Pro	Val	Ala	His	Val	Val	Ala	Asn
1				5					10					15	

Pro	Gln	Ala	Glu	Gly	Gln	Gly	Gly	Cys
			20					25

<210> 102

<211> 14

<212> PRT  
<213> Artificial Sequence

<220>  
<223> C-TNF-a mutant

<400> 102

Cys Gly Gly Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala  
1 5 10

<210> 103  
<211> 745  
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<220>  
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<220>  
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<400> 103

gat cca gca gct ggg ctc gag gtg cta gcg gga ggg ggt gga tgt ggg 48  
Asp Pro Ala Ala Gly Leu Glu Val Leu Ala Gly Gly Gly Gly Cys Gly  
1 5 10 15

atc gaa ggt cgc aag ctt act cac aca tgc cca ccg tgc cca gca cct 96  
Ile Glu Gly Arg Lys Leu Thr His Thr Cys Pro Pro Cys Pro Ala Pro  
20 25 30

gaa gcc gag ggg gca ccg tca gtc ttc ctc ttc ccc cca aaa ccc aag 144  
Glu Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
35 40 45

gac acc ctc atg atc tcc cgg acc cct gag gtc aca tgc gtg gtg gtg 192  
Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
50 55 60

gac gtg agc cac gaa gac cct gag gtc aag ttc aac tgg tac gtg gac 240  
Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp  
65 70 75 80

ggc gtg gag gtg cat aat gcc aag aca aag ccg cgg gag gag cag tac 288  
Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
85 90 95

aac agc acg tac cgt gtg gtc agc gtc ctc acc gtc ctg cac cag gac 336  
Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
100 105 110

tgg ctg aat ggc aag gag tac aag tgc aag gtc tcc aac aaa gcc ctc 384  
Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
115 120 125

cca gcc tcc atc gag aaa acc atc tcc aaa gcc aaa ggg cag ccc cga 432  
Pro Ala Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
130 135 140

gaa cca cag gtg tac acc ctg ccc cca tcc cgg gat gag ctg acc aag 480  
Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys  
145 150 155 160

aac cag gtc agc ctg acc tgc ctg gtc aaa ggc ttc tat ccc agc gac 528  
Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
165 170 175

atc gcc gtg gag tgg gag agc aat ggg cag ccg gag aac aac tac aag 576  
Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys  
180 185 190

acc acg cct ccc gtg ttg gac tcc gac ggc tcc ttc ttc ctc tac agc 624  
Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
195 200 205

aag ctc acc gtg gac aag agc agg tgg cag cag ggg aac gtc ttc tca 672  
Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
210 215 220

tgc tcc gtg atg cat gag gct ctg cac aac cac tac acg cag aag agc 720  
Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser  
225 230 235 240

ctc tcc ctg tct ccg ggt aaa tgac 745  
Leu Ser Leu Ser Pro Gly Lys  
245

<210> 104  
<211> 247  
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<213> Artificial Sequence

<220>  
<223> pCep-Xa-Fc\*

<400> 104

Asp Pro Ala Ala Gly Leu Glu Val Leu Ala Gly Gly Gly Gly Cys Gly  
1 5 10 15

Ile Glu Gly Arg Lys Leu Thr His Thr Cys Pro Pro Cys Pro Ala Pro  
20 25 30

Glu Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
35 40 45

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val  
50 55 60

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp  
65 70 75 80

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr  
85 90 95

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp  
100 105 110

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu  
115 120 125

Pro Ala Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg  
130 135 140

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys  
145 150 155 160

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp  
165 170 175

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys  
180 185 190

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser  
195 200 205

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser  
210 215 220

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser  
225 230 235 240

Leu Ser Leu Ser Pro Gly Lys  
245

<210> 105  
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<220>  
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<220>  
<221> CDS  
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Asp Pro Ala Ala Gly Leu Glu Val Leu Ala Gly Gly Gly Gly Cys Gly  
1 5 10 15

gac gat gac gac aag ctt act cac aca tgc cca ccg tgc cca gca cct 96  
Asp Asp Asp Asp Lys Leu Thr His Thr Cys Pro Pro Cys Pro Ala Pro  
20 25 30

<210> 106  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> pCep-EK-Fc\*

<400> 106

Asp	Pro	Ala	Ala	Gly	Leu	Glu	Val	Leu	Ala	Gly	Gly	Gly	Gly	Cys	Gly	
1				5					10					15		

Asp	Asp	Asp	Asp	Lys	Leu	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	
			20					25					30			

<210> 107  
 <211> 144  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> pCep-SP-EK-Fc\*

<220>  
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atg gag aca gac aca ctc ctg cta tgg gta ctg ctg ctc tgg gtt cca															48	
Met	Glu	Thr	Asp	Thr	Leu	Leu	Leu	Trp	Val	Leu	Leu	Leu	Trp	Val	Pro	
1				5					10					15		
ggt tcc act ggt gac gcg gat cca gca gct ggg ctc gag gtg cta gcg															96	
Gly	Ser	Thr	Gly	Asp	Ala	Asp	Pro	Ala	Ala	Gly	Leu	Glu	Val	Leu	Ala	
			20					25					30			
gga ggg ggt gga tgt ggg gac gat gac gac aag ctt act cac aca tgc															144	
Gly	Gly	Gly	Gly	Cys	Gly	Asp	Asp	Asp	Asp	Lys	Leu	Thr	His	Thr		
		35					40					45				

<210> 108  
 <211> 47  
 <212> PRT  
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<220>  
 <223> pCep-SP-EK-Fc\*

<400> 108

Met	Glu	Thr	Asp	Thr	Leu	Leu	Leu	Trp	Val	Leu	Leu	Leu	Trp	Val	Pro	
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Gly	Ser	Thr	Gly	Asp	Ala	Asp	Pro	Ala	Ala	Gly	Leu	Glu	Val	Leu	Ala	
			20					25					30			

Gly Gly Gly Gly Cys Gly Asp Asp Asp Asp Lys Leu Thr His Thr  
 35 40 45

<210> 109  
 <211> 399  
 <212> DNA  
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<220>  
 <223> Res-C-Xa

<220>  
 <221> CDS  
 <222> (10)..(399)

<400> 109  
 ggatccggg atg aag aac ctt tca ttt ccc ctg ctt ttc ctt ttc ttc ctt 51  
 Met Lys Asn Leu Ser Phe Pro Leu Leu Phe Leu Phe Phe Leu  
 1 5 10

gtc cct gaa ctg ctg ggc tcc agc atg cca ctg tgt ccc atc gat gaa 99  
 Val Pro Glu Leu Leu Gly Ser Ser Met Pro Leu Cys Pro Ile Asp Glu  
 15 20 25 30

gcc atc gac aag aag atc aaa caa gac ttc aac tcc ctg ttt cca aat 147  
 Ala Ile Asp Lys Lys Ile Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn  
 35 40 45

gca ata aag aac att ggc tta aat tgc tgg aca gtc tcc tcc aga ggg 195  
 Ala Ile Lys Asn Ile Gly Leu Asn Cys Trp Thr Val Ser Ser Arg Gly  
 50 55 60

aag ttg gcc tcc tgc cca gaa ggc aca gca gtc ttg agc tgc tcc tgt 243  
 Lys Leu Ala Ser Cys Pro Glu Gly Thr Ala Val Leu Ser Cys Ser Cys  
 65 70 75

ggc tct gcc tgt ggc tgc tgg gac att cgt gaa gaa aaa gtg tgt cac 291  
 Gly Ser Ala Cys Gly Ser Trp Asp Ile Arg Glu Glu Lys Val Cys His  
 80 85 90

tgc cag tgt gca agg ata gac tgg aca gca gcc cgc tgc tgt aag ctg 339  
 Cys Gln Cys Ala Arg Ile Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu  
 95 100 105 110

cag gtc gct tcc tct cta gcg gga ggg ggt gga tgt ggg atc gaa ggt 387  
 Gln Val Ala Ser Ser Leu Ala Gly Gly Gly Gly Cys Gly Ile Glu Gly  
 115 120 125

cgc aag ctt act 399  
 Arg Lys Leu Thr  
 130

<210> 110  
 <211> 130  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Res-C-Xa

<400> 110

Met Lys Asn Leu Ser Phe Pro Leu Leu Phe Leu Phe Phe Leu Val Pro  
1 5 10 15

Glu Leu Leu Gly Ser Ser Met Pro Leu Cys Pro Ile Asp Glu Ala Ile  
20 25 30

Asp Lys Lys Ile Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn Ala Ile  
35 40 45

Lys Asn Ile Gly Leu Asn Cys Trp Thr Val Ser Ser Arg Gly Lys Leu  
50 55 60

Ala Ser Cys Pro Glu Gly Thr Ala Val Leu Ser Cys Ser Cys Gly Ser  
65 70 75 80

Ala Cys Gly Ser Trp Asp Ile Arg Glu Glu Lys Val Cys His Cys Gln  
85 90 95

Cys Ala Arg Ile Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu Gln Val  
100 105 110

Ala Ser Ser Leu Ala Gly Gly Gly Cys Gly Ile Glu Gly Arg Lys  
115 120 125

Leu Thr  
130

<210> 111  
<211> 399  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Res-C-EK

<220>  
<221> CDS  
<222> (10) .. (399)

<400> 111  
ggatccggg atg aag aac ctt tca ttt ccc ctc ctt ttc ctt ttc ttc ctt 51  
Met Lys Asn Leu Ser Phe Pro Leu Leu Phe Leu Phe Phe Leu  
1 5 10  
gtc cct gaa ctg ctg ggc tcc agc atg cca ctg tgt ccc atc gat gaa 99  
Val Pro Glu Leu Leu Gly Ser Ser Met Pro Leu Cys Pro Ile Asp Glu  
15 20 25 30  
gcc atc gac aag aag atc aaa caa gac ttc aac tcc ctg ttt cca aat 147  
Ala Ile Asp Lys Lys Ile Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn

35										40					45					
gca	ata	aag	aac	att	ggc	tta	aat	tgc	tgg	aca	gtc	tcc	tcc	aga	ggg	195				
Ala	Ile	Lys	Asn	Ile	Gly	Leu	Asn	Cys	Trp	Thr	Val	Ser	Ser	Arg	Gly					
		50						55				60								
aag	ttg	gcc	tcc	tgc	cca	gaa	ggc	aca	gca	gtc	ttg	agc	tgc	tcc	tgt	243				
Lys	Leu	Ala	Ser	Cys	Pro	Glu	Gly	Thr	Ala	Val	Leu	Ser	Cys	Ser	Cys					
		65					70					75								
ggc	tct	gcc	tgt	ggc	tcg	tgg	gac	att	cgt	gaa	gaa	aaa	gtg	tgt	cac	291				
Gly	Ser	Ala	Cys	Gly	Ser	Trp	Asp	Ile	Arg	Glu	Glu	Lys	Val	Cys	His					
	80					85					90									
tgc	cag	tgt	gca	agg	ata	gac	tgg	aca	gca	gcc	cgc	tgc	tgt	aag	ctg	339				
Cys	Gln	Cys	Ala	Arg	Ile	Asp	Trp	Thr	Ala	Ala	Arg	Cys	Cys	Lys	Leu					
	95				100					105					110					
cag	gtc	gct	tcc	tct	cta	gcg	gga	ggg	ggg	gga	tgt	ggg	gac	gat	gac	387				
Gln	Val	Ala	Ser	Ser	Leu	Ala	Gly	Gly	Gly	Gly	Cys	Gly	Asp	Asp	Asp					
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gac	aag	ctt	act													399				
Asp	Lys	Leu	Thr																	
			130																	

<210> 112  
 <211> 130  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Res-C-EK

<400> 112

Met	Lys	Asn	Leu	Ser	Phe	Pro	Leu	Leu	Phe	Leu	Phe	Phe	Leu	Val	Pro
1				5					10					15	

Glu	Leu	Leu	Gly	Ser	Ser	Met	Pro	Leu	Cys	Pro	Ile	Asp	Glu	Ala	Ile
			20					25					30		

Asp	Lys	Lys	Ile	Lys	Gln	Asp	Phe	Asn	Ser	Leu	Phe	Pro	Asn	Ala	Ile
		35					40					45			

Lys	Asn	Ile	Gly	Leu	Asn	Cys	Trp	Thr	Val	Ser	Ser	Arg	Gly	Lys	Leu
	50					55					60				

Ala	Ser	Cys	Pro	Glu	Gly	Thr	Ala	Val	Leu	Ser	Cys	Ser	Cys	Gly	Ser
65					70					75					80

Ala	Cys	Gly	Ser	Trp	Asp	Ile	Arg	Glu	Glu	Lys	Val	Cys	His	Cys	Gln
				85					90					95	

Cys	Ala	Arg	Ile	Asp	Trp	Thr	Ala	Ala	Arg	Cys	Cys	Lys	Leu	Gln	Val
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

100	105	110
Ala Ser Ser Leu Ala Gly Gly Gly Gly Cys Gly Asp Asp Asp Asp Lys		
115	120	125
Leu Thr		
130		
<210> 113		
<211> 26		
<212> PRT		
<213> Mus musculus		
<400> 113		
Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Leu Asp Phe Thr Trp His		
1	5	10 15
Ser Pro Pro Ser Lys Ser His His Lys Lys		
20	25	
<210> 114		
<211> 120		
<212> PRT		
<213> Artificial Sequence		
<220>		
<223> rat MIF-C1		
<400> 114		
Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Glu		
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Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys		
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Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Thr		
35	40	45
Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser Ile		
50	55	60
Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu Cys		
65	70	75 80
Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr Ile		
85	90	95
Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser Thr		
100	105	110

Phe Ala Gly Gly Gly Gly Cys Gly  
115 120

<210> 115  
<211> 132  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> rat MIF-C2

<400> 115

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Glu  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Thr  
35 40 45

Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser Thr  
100 105 110

Phe Ala Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly Ala Pro  
115 120 125

Gly Gly Cys Gly  
130

<210> 116  
<211> 18  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> amino acid linker C2

<400> 116

Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly Ala Pro Gly Gly

1 5 10 15

Cys Gly

<210> 117  
<211> 124  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> rat MIF-C3

<400> 117

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Glu  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Thr  
35 40 45

Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser Thr  
100 105 110

Phe Ala Asp Lys Thr His Thr Ser Pro Pro Cys Gly  
115 120

<210> 118  
<211> 10  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> amino acid linker C3

<400> 118

Asp Lys Thr His Thr Ser Pro Pro Cys Gly  
1 5 10

<210> 119  
<211> 114  
<212> PRT  
<213> Homo sapiens

<400> 119

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala  
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr  
100 105 110

Phe Ala

<210> 120  
<211> 114  
<212> PRT  
<213> Rattus norvegicus

<400> 120

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Glu  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Thr  
35 40 45

Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

-41-

Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser Thr  
100 105 110

Phe Ala

<210> 121  
<211> 114  
<212> PRT  
<213> Mus musculus

<400> 121

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Glu  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Thr  
35 40 45

Phe Ser Gly Thr Asn Asp Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser Thr  
100 105 110

Phe Ala

<210> 122  
<211> 120  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human MIF-C1

<400> 122

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala  
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr  
100 105 110

Phe Ala Gly Gly Gly Gly Cys Gly  
115 120

<210> 123

<211> 132

<212> PRT

<213> Artificial Sequence

<220>

<223> human MIF-C2

<400> 123

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala  
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr  
100 105 110

Phe Ala Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly Ala Pro  
115 120 125

Gly Gly Cys Gly  
130

<210> 124  
<211> 124  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human MIF-C3

<400> 124

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala  
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr  
100 105 110

Phe Ala Asp Lys Thr His Thr Ser Pro Pro Cys Gly  
115 120

<210> 125  
<211> 396  
<212> DNA

<213> Artificial Sequence

<220>

<223> AP205 P5T mutant

<400> 125

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atagccgaac tgaataatgt ttcaggtcaa tatgtatctg ttataagcg tcctgcacct	180
aaaccggaag gttgtgcaga tgctgtgtc attatgccga atgaaaacca atccattcgc	240
acagtgattt cagggtcagc cgaaaacttg gctaccttaa aagcagaatg ggaaactcac	300
aaacgtaacg ttgacacact cttcgcgagc ggcaacgccg gtttgggttt cttgaccct	360
actgcggcta tcgtatcgtc tgatactact gcttaa	396